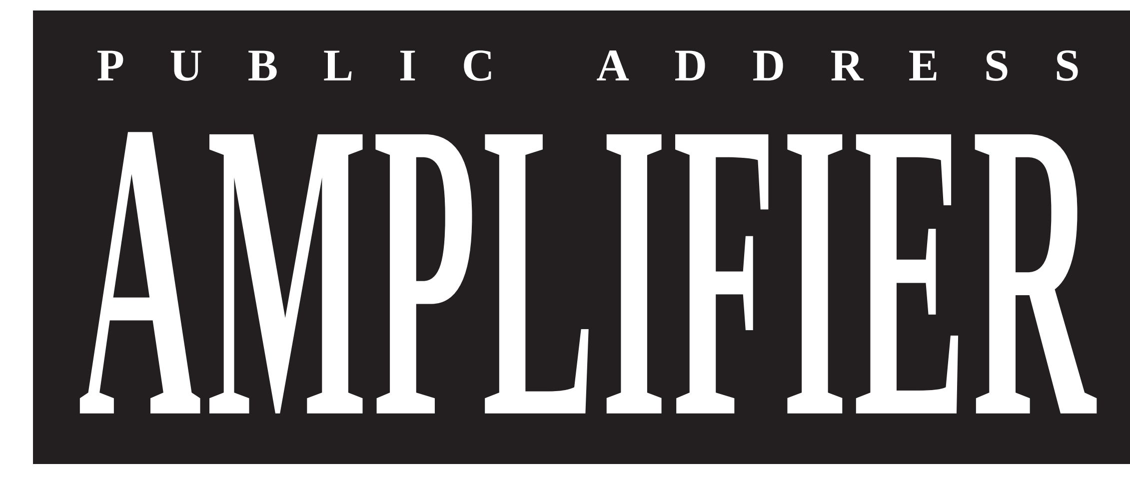
SERVICE MANUAL



A-60/120



www.inter-m.com
MADE IN KOREA
NO: 9007985000



ELECTRICAL ADJUSTMENT PROCEDURE

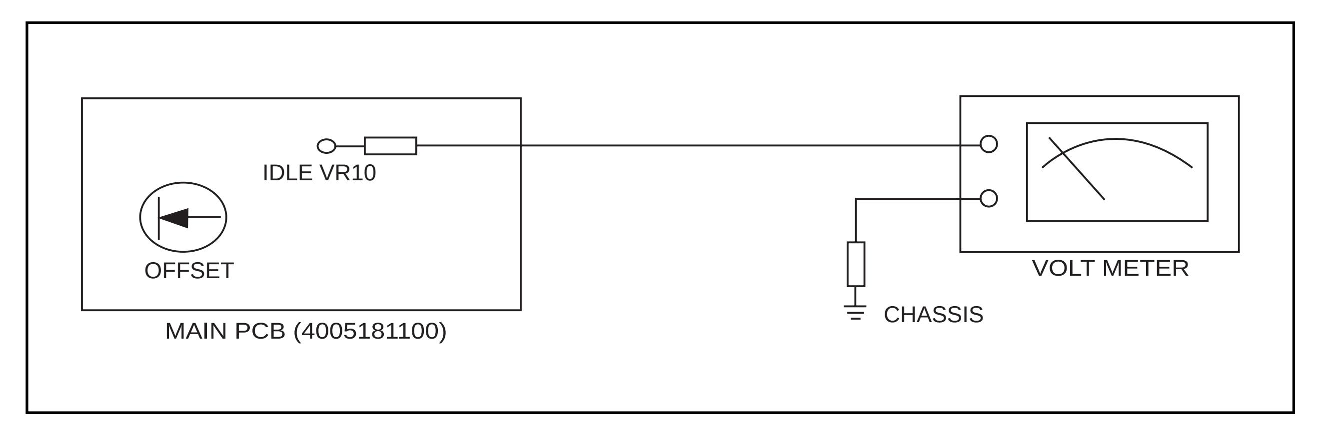
■ AMP SECTION

1. OFF SET VOLTAGE

A. Setting

Set the master volume control minimum.

B. Connection



C. Adjustment

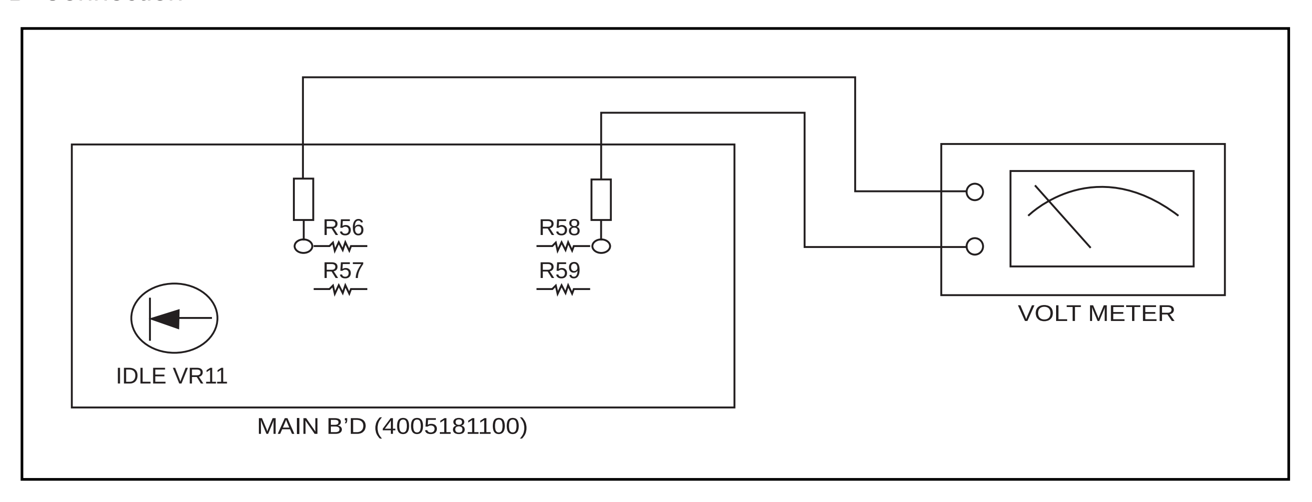
Control OFFSET until voltmeter is the “0” position. (at Output Terminal)

2. IDLE CURRENT

A. Setting

Set the master volume control minimum.

B. Connection



C. Adjustment

A-60: Adjust VR11 so that the current through the R56 and R58 become 10 milliampere. When that voltage is 10 millivolt, the current becomes 10 milliampere.

A-120: Adjust VR11 so that the current through the R56 and R58 become 5 milliampere. When that voltage is 5 millivolt, the current becomes 10 milliampere.

CONTENTS

SPECIFICATIONS

■ ELECTRICAL
- Rated Output/Impedance A-60: 15.5V/4Ω, 70V/81.6Ω, 100V/166.7Ω
  A-120: 21.9V/4Ω, 70V/40.8Ω, 100V/83.3Ω
- Input Sensitivity/Impedance
  MIC 1-3... -60dB/600Ω, BAL
  Aux 1 .... -10dB/10kΩ, UNBAL
  Aux 2 .... +3dB/10kΩ, UNBAL
- Frequency Response (±3dB)...80Hz~16kHz
- T.H.D. ....Less than 1%
- S/N
  MIC ....Better than 50dB
  Aux...Better than 75dB
- Tone Control
  HIGH (10kHz)...±12dB
  LOW (100Hz) ....±12dB

■ GENERAL
- Power Source ....AC 100V–240V, 50/60Hz
- Power Consumption A-60: 75W
  A-120: 105W
- Weight...A-60: 8.9kg
  A-120: 10.3kg
- Dimensions...420(W) ×88(H) ×320(D)mm

*Specifications and design subject to change without notice for improvements.

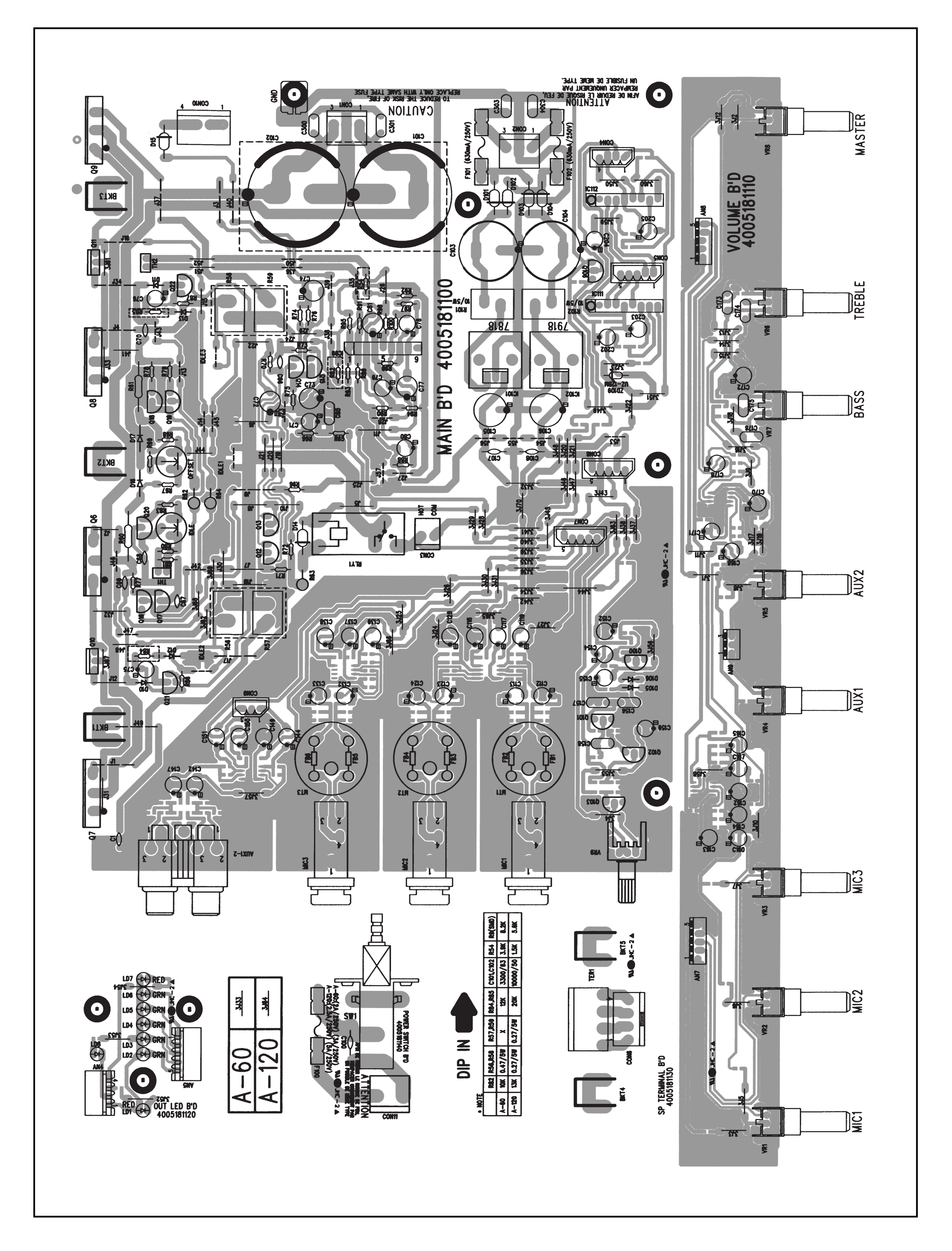
ELECTRICAL PARTS LIST

Ref No.	Part No.	Description	Value
MAIN B'D (4005181100)			
Q16-17	2008206998-T	TR PNP 2SA 965Y(KTA 1023Y)	2SA 965Y
Q18-19	2008407970-T	TR NPN KTC 2SC 2235Y(KTC1027Y)	2SC 2235Y
Q21 Q106	2008606104-T	TR NPN KTC 3198Y	KTC 3198Y
Q22	2008606105-T	TR PNP KTA 1266Y	KTA 1266Y
Q12-15 Q20	2008606108-T	TR NPN KTC2240BL (KTC 3200BL)	KTC 2240BL
Q100	2008606998-T	TR NPN KTD 1302 KEC ONLY	KTD1302
Q101-103	2008606998-T	TR NPN KTD 1302 KEC ONLY	KTD 1302
Q8(A60)	2028107106	TR PNP 2SB688(O)/2SA1940	2SB 688
Q8-9(A120)	2028107118	TR PNP 2SA1943 TOSHIBA	2SA1943
Q11	2028107984	TR PNP 2SA 1306A(Y),KTA1659A(Y	KTA 1659A
Q6(A60)	2028407109	TR NPN 2SC5197 TOSHIBA	2SD 718
Q6-7(A120)	2028407122	TR NPN 2SC5200 TOSHIBA	2SC5200
Q10	2028407990	TR NPN 2SC 3298A(Y),KTC4370A(Y	KTC 4370A
D16-17	2058010101	DIODE IN 60	1N 60
D100	2058100103	DIODE KBPC-2504(SB256)LUG TYPE	KBPC2504
D14	2058100996	DIODE RECTIFIER LT1N4006(4007)	1N 4006
D15 D101-104	2058100996	DIODE RECTIFIER LT1N4006(4007)	1N4006
D10-13	2058304100	DIODE IN4148M	1N 4148
D105-106			
ZD109	2058502120	DIODE ZENER UZ-12BM(1N5242B)	UZ-12BM
IC111-112	2118030405	IC KEC KIA 6966S	KIA6966S
IC8	2118050410	IC TA7317P TOSHIBA	TA 7317P
IC101	2128611000	IC KA7818 COMMON	7818
IC102	2128611100	IC KA7918 COMMON	7918
TH1-2	2438209011	THERMISTOR YSG-503J L=100MM	50K
R77	3009101973	RES CF 100 1/5W J N	100
R71-72 R81	3009102973	RES CF 1K 1/5W J N	1K
R69 R74-76	3009103973	RES CF 10K 1/5W J N	10K
R93 R187	3009104973	RES CF 100K 1/5W J N	100K
R68 R86-87	3009152973	RES CF 1.5K 1/5W J N	1.5K
R88 R96	3009153973	RES CF 15K 1/5W J N	15K
R98 R92			
R65 R83	3009182973	RES CF 1.8K 1/5W J N	1.8K
R66	3009203973	RES CF 20K 1/5W J N	20K
R78-79	3009221973	RES CF 220 1/5W J N	220
R97	3009224973	RES CF 220K 1/5W J N	220K
R90	3009302973	RES CF 3K 1/5W J N	3K
R99	3009333973	RES CF 33K 1/5W J N	33K
R73	3009471973	RES CF 470 1/5W J N	470
R70 R95	3009473973	RES CF 47K 1/5W J N	47K
R80	3009562973	RES CF 5.6K 1/5W J N	5.6K
R89 R91 R94	3009563973	RES CF 56K 1/5W J N	56K
R100			
R67	3009821973	RES CF 820 1/5W J N	820
R62	3039103575-T	RES MO 10K 2W JR	10K 2W
R63	3039152575-T	RES MO 1.5K 2W J RADIAL	1.5K 2W
R60-61	3039203473-F	RES MO 20K 1W JN	20K 1W
R64	3039271575-T	RES MO 270 2W J RADIAL	270 2W
R101-102	3059100772	RES CE 10 5W JN	10/5W
R54(A60)	3009392973	RES CF 3.9K 1/5W J N	3.9K
R54(A120)	3009152973	RES CF 1.5K 1/5W J N	1.5K
R9(A60)	3009822973	RES CF 8.2K 1/5W J N	8.2K
R9(A120)	3009562973	RES CF 5.6K 1/5W J N	5.6K
R82(A60)	3009103973	RES CF 10K 1/5W J N	10K
R82(A120)	3009133973	RES CF 13K 1/5W J N	13K
R84-85(A60)	3009123973	RES CF 12K 1/5W J N	12K
R84-85(A120)	3009203973	RES CF 20K 1/5W J N	20K
R56-59(A60)	3049478783	RES CE 0.47 5W J T HAN NAE	0.47/5W
R56-59(A120)	3059278783	RES CE 0.27 5W J T	0.27/5W
VR9	3228082210	VR RK09K111083MA	10KB
VR10-11	3248347120-T	SES SEMI RH0638C100471	470B
C103-104	3408222261	CAP RSA 2200UF 35V SNAP 18 P	2200/35
C75-76 C79	3409210071-T	CAP AF RSG 10UF 50V 5 P	10/50
C105-106	3409210141-T	CAP AF RSG 100UF 25V 6 P	100/25
C71 C119	3409210971-T	CAP AF RSG 1UF 50V 5 P	1/50
C128 C139			
C142 C144			
C147 C151			
C154-155			
C80	3409222071-T	CAP AF RSG 22UF 50V 5 P	22/50
C77	3409233071-T	CAP AF RSG 33UF 50V 6 P	33/50

Ref No.	Part No.	Description	Value
C72-74 C81	3409247071-T	CAP AF RSG 47UF 50V 6 P	47/50
C117-118			
C137-138			
C149-150			
C152 C159			
C78	3409247871-T	CAP AF RSG 0.47UF 50V 5 P	0.47/50
C112-113	3409247971-T	CAP AF RSG 4.7UF 50V 5 P	4.7/50
C123-124			
C132-133			
C202-205			
C67 C69-70	3509101130-T	CAP CE SL 100PF 50V J	100P
C111	3509102530-T	CAP CE B 0.001UF 50V J	0.001/50
C1 C68	3509103530-T	CAP CE F 0.01UF 50V Z	0.01/50
C107-108	3509104530-T	CAP CE F 0.1UF 50V Z	0.1/50
C66	3509470130-T	CAP CE SL 47PF 50V J	47P
C157	3609103120-T	CAP MA 0.01UF 100V	0.01/100(M)
C300-301	3609104120-T	CAP MA 0.1UF 100V J	0.1/100(M)
C303-304			
C156 C158			
C65	3609182120-T	CAP MA 0.0018UF 100V J	0.0018/100(M)
C101-102(A60)	3419533279	CAP LSW332M 1HO25M(3300UF/50V)	3300/6.3
C101-102(A120)	3419510379	CAP E LPW103HIJP63V-WGB3 JAMIC	10000/50
FB101-106	3908609990	EMI FILTER 1000PF	EMI 1000P
IDLE1-3	4355469103	WIRE JUMPER	JUMPER
WAF9	4428595003	LW5267/LWB0640/2.5MM-03P	LW-5267-03P
WAF5	4428595004	LW5267/LWB0640/2.5MM-04P	LW-5267-04P
WAF7-8	4428595005	LW5267/LWB0640/2.5MM-05P	LW-5267-05P
WAF4	4428595005	LW5267/LWB0640/2.5MM-05P	LW-5267-05P
WAF3	4428596602	WAFER LW-1143-02P	LW-1143-02P
WAF1-2	4428596603	LOCK WAFER LW-1143-03P	LW-1143-03P
AUX1-2	4438095210	JACK RCA 4P	RCA 4P
MIC1-3	4438097310	JACK PHONE 4P	PHONE 4P
F101-102	5508411934	FUSE TS 20MM 630MA/250V U/C/S	T630mA/250V
RLY1	5528008200	RELAY DH24D1-0 24V (DAIICHI)	HR-311
IC103-105	S21101080002	IC 2068 SOIC8	NJM 2068DD
R109-110	S30101017121	RES TF 100 1/16W 1608	100
R123-124			
R135-136			
R184			
R113-114	S30101027121	RES TF 1K 1/16W 1608	1K
R119-120			
R105-106	S30101027121	RES TF 1K 1/16W 1608	1K
R103-104	S30101037121	RES TF 10K 1/16W 1608	10K
R111-112			
R117-118			
R127			
R132 R146			
R185-186	S30101047121	RES TF 100K 1/16W 1608	100K
R128	S30101137121	RES TF 11K 1/16W 1608	11K
R139	S30101237121	RES TF 12K 1/16W 1608	12K
R107 R108	S30101247121	RES TF 120K 1/16W 1608	120K
R115 R121	S30101847121	RES TF 180K 1/16W 1608	180K
R116 R122			
R188	S30102037121	RES TF 20K 1/16W 1608	20K
R125-126	S30102217121	RES TF 220 1/16W 1608	220
R130-131			
R137	S30102237121	RES TF 22K 1/16W 1608	22K
R138	S30102247121	RES TF 220K 1/16W 1608	220K
R141	S30102257121	RES TF 2.2M 1/16W 1608	2.2M
R190 R193	S30103317121	RES TF 330 1/16W 1608	330
R143	S30103337121	RES TF 33K 1/16W 1608	33K
R142	S30103937121	RES TF 39K 1/16W 1608	39K
R129 R134	S30104727121	RES TF 4.7K 1/16W 1608	4.7K
R191 R133	S30104737121	RES TF 47K 1/16W 1608	47K
R140 R145			
R144 R192	S30105637121	RES TF 56K 1/16W 1608	56K
R147	S30105647121	RES TF 560K 1/16W 1608	560K
R189	S30108237121	RES TF 82K 1/16W 1608	82K
C110 C121-122	S35101025321	CAP CL 0.001UF 50V K 1608	0.001/50
C130 C141			
C146 C131			
C143 C148	S35100504321	CAP CL 5PF 50V J 1608	5P
C114 C125	S35101504321	CAP CL 15PF 50V J 1608	15P
C134			
C126 C127	S35103304321	CAP CL 33PF 50V J 1608	33P
C135-136			

Ref No.	Part No.	Description	Value
C153	S35104704321	CAP CL 47PF 50V J 1608	47P
C115 C116	S35106804321	CAP CL 68PF 50V J 1608	68P
VOLUME B’D (4005181110)			
VR6-7	3228069180	RK09S11F010353B	50KB
VR1-5 VR8	3228069190	RK09S11B000313A	10KA
C164 C167	3409210071-T	CAP AF RSG 10UF 50V 5 P	10/50
C165 C168	3409210071-T	CAP AF RSG 10UF 50V 5 P	10/50
C160	3409222071-T	CAP AF RSG 22UF 50V 5 P	22/50
C172 C178	3409233071-T	CAP AF RSG 33UF 50V 6 P	33/50
C162-163 C170-171	3409247071-T	CAP AF RSG 47UF 50V 6 P	47/50
C173	3609102120-T	CAP MA 0.001UF 100V	0.001/100(M)
C175-176	3609103120-T	CAP MA 0.01UF 100V	0.01/100(M)
C174	3609152120-T	CAP MA 0.0015UF 100V J	0.0015/100(M)
CON9	4355740621	CON ASS’Y 3P 510MM A-60/120	CON ASS’Y 3P (510MM)
CON7	4355743319	CON ASS’Y 5P (450MM) A-60/120	CON ASS’Y 5P (450MM)
CON8	4355764012	CON ASS’Y 5P (250MM) A-60/120	CON ASS’Y 5P (250MM)
IC106-107	S21101080002	IC 2068 SOIC8	NJM 2068DD
R151-152 R158-159	S30101017121	RES TF 100 1/16W 1608	100
R156	S30101027121	RES TF 1K 1/16W 1608	1K
R157	S30101037121	RES TF 10K 1/16W 1608	10K
R165	S30101227121	RES TF 1.2K 1/16W 1608	1.2K
R200-205	S30101237121	RES TF 12K 1/16W 1608	12K
R208-209	S30101337121	RES TF 13K 1/16W 1608	13K
R210	S30101837121	RES TF 18K 1/16W 1608	18K
R148 R153	S30102727121	RES TF 2.7K 1/16W 1608	2.7K
R206-207	S30103927121	RES TF 3.9K 1/16W 1608	3.9K
R150 R155	S30104717121	RES TF 470 1/16W 1608	470
R149 R154	S30104737121	RES TF 47K 1/16W 1608	47K
C161 C166	S35100504321	CAP CL 5PF 50V J 1608	5P
C177	S35101004321	CAP CL 10PF 50V J 1608	10P
C169	S35101514321	CAP CL 150PF 50V J 1608	150P
OUTPUT LED B’D (4005181120)			
LD1 LD7-8	2308684231	LED REC KLR208 2*5 RED KEC	RED
LD2-6	2308684271	LED REC KLG208 2*5 GRE KEC	GREEN
CON5	4355740421	CON ASS’Y 4P 510MM A-60/120	CON ASS’Y 4P (510MM)
CON4	4355740521	CON ASS’Y 5P 510MM A-60/120	CON ASS’Y 5P (510MM)
R1-8	S30106817121	RES TF 680 1/16W 1608	680
SP TERMINAL B’D (4005181130)			
TER1	4408193904	TERMINAL BLOCK(M) 4P	TERMINAL BLOCK(M)4P
TER2	4408194004	TERMINAL BLOCK(F) 4P	TERMINAL BLOCK(F)4P
WAF6	4428596604	LOCK WAFER LW-1143-04P	LW-1143-04P
POWER SW B’D (4005181140)			
C100	3549472407	CAP DE2E3KH472MA4B	0.0047/400V
WAF11	4428596603	LOCK WAFER LW-1143-03P	LW-1143-03P
SW1	4648199920	SW POWER SDD1PASL011 A-60/120	POWER S/W
OPT1(A60)	2818086100	TRANS OUTPUT A-60	O.P.T
OPT1(A120)	2818086200	TRANS OUTPUT A-120	O.P.T
OPT1(A60UL)	2818085900	TRANS OUTPUT A-60(UL)	O.P.T
OPT1(A120UL)	2818086000	TRANS OUTPUT A-120(UL)	O.P.T
PT1(A60)	2828060000	TRANS POWER 120V A-60	120V
	2828060010	TRANS POWER 220V A-60	220V
	2828060020	TRANS POWER 230V A-60	230V
	2828060030	TRANS POWER 240V A-60	240V
PT1(A120)	2828059900	TRANS POWER 120V A-120	120V
	2828059910	TRANS POWER 220V A-120	220V
	2828059920	TRANS POWER 230V A-120	230V
	2828059930	TRANS POWER 240V A-120	240V
F100(A60)	5508112937	FUSE 51S 20MM 3A/250V K/U/C/J	120V
	5508212730	FUSE NB 20MM 2A/250V KS	220V
	5508412736	FUSE TS 20MM 2A/250V U/C/S/V	230V/240V
F100(A120)	5508103337	FUSE 53S 20MM 5A/250V K/U/C/J	120V
	5508112837	FUSE51S 20MM 2.5A/250V K/U/C/J	220V
	5508412836	FUSE TS 20MM 2.5A/250V U/C/S/V	230V/240V

TOP AND BOTTOM VIEW OF P.C. BOARD

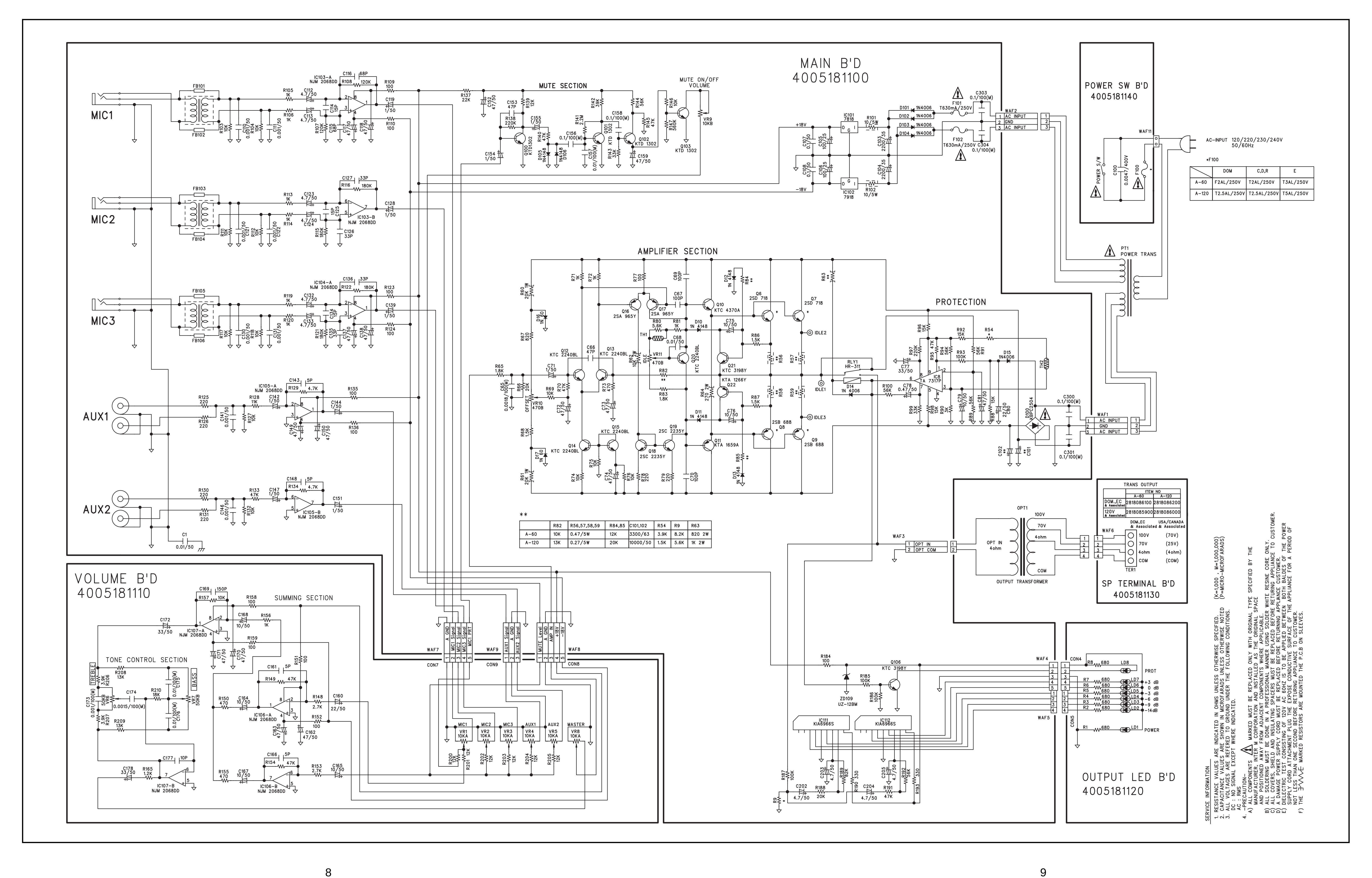


WIRING DIAGRAM

SP TERMINAL B'D 4005181130
WAF6
OUTPUT TRANS FORMER
POWER TRANS FORMER
POWER SWITCH B'D 4005181140
CON11
OUTPUT LED B'D 4005181120
AN4
AN5
VOLUME B'D 4005181110
CON8
CON9
CON7
RED
ORG
BLU
RED
MAIN B'D 4005181100
WAF10
WAF9
WAF1
WAF3
WAF2
WAF7
WAF8
WAF5
WAF4

BLOCK DIAGRAM

TONE CONTROL
LED DISPLAY
LED DRIVER
100V
70V
4ohm
COM
O.P.T
SUM
SUM
SUM
PA
PROTECTION
MASTER
MUTE
HA
HA
HA
HA
HA
MIC1
MIC2
MIC3
AUX1
AUX2
AMP B+
REG B+
P.T
FUSE
POWER S/W
AC 120,220,230,240V/50,60Hz



*F100

	DOM	C,D,R	E
A-60	F2AL/250V	T2AL/250V	T3AL/250V
A-120	T2.5AL/250V	T2.5AL/250V	T5AL/250V

**

	R82	R56,57,58,59	R84,85	C101,102	R54	R9	R63
A-60	10K	0.47/5W	12K	3300/63	3.9K	8.2K	820 2W
A-120	13K	0.27/5W	20K	10000/50	1.5K	5.6K	1K 2W

TRANS OUTPUT

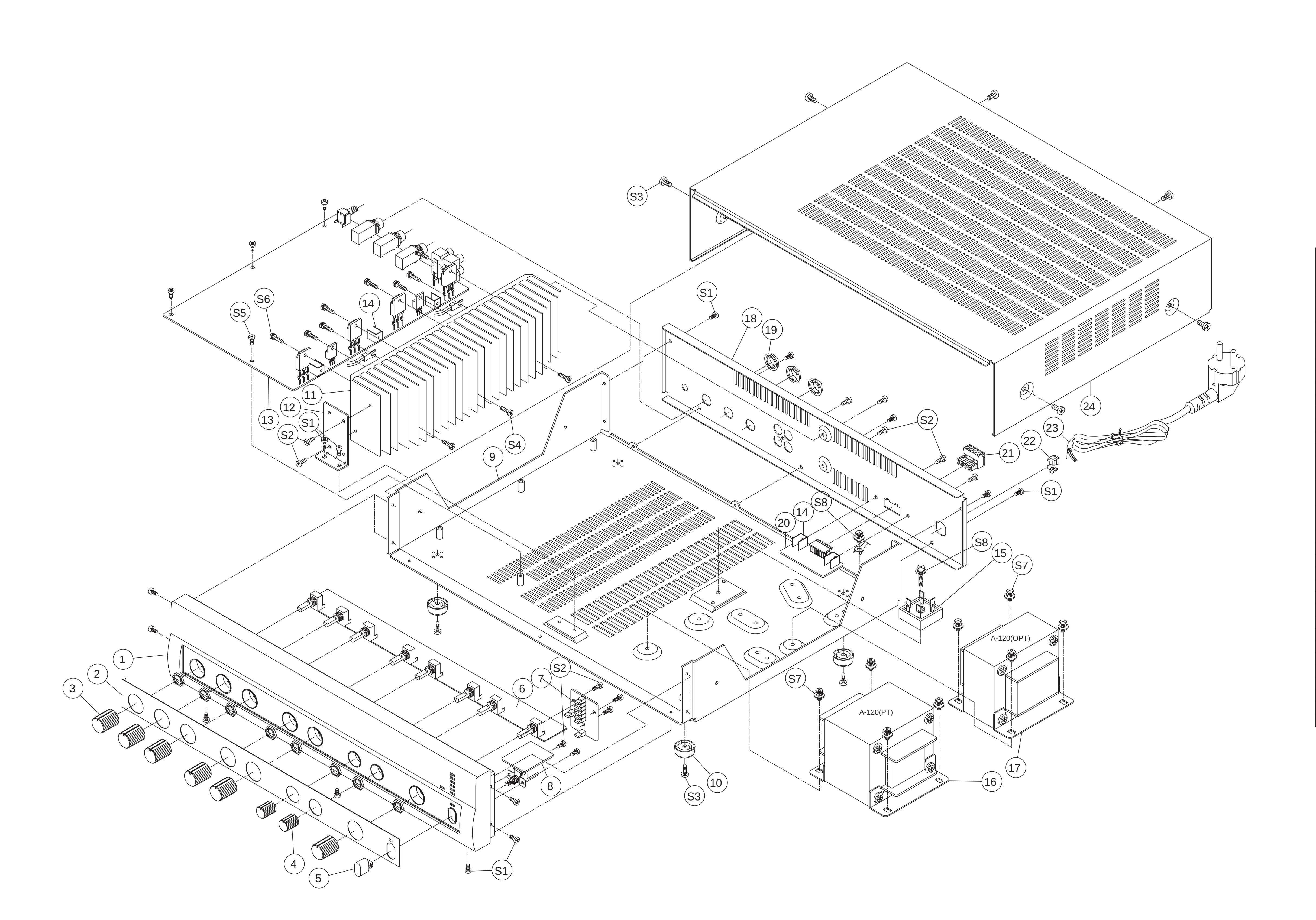
	ITEM NO A-60	ITEM NO A-120
DOM.,EC & Associated	2818086100	2818086200
120V & Associated	2818085900	2818086000

DOM.,EC & Associated	USA/CANADA & Associated
100V	(70V)
70V	(25V)
4ohm	(4ohm)
COM	(COM)

SERVICE INFORMATION

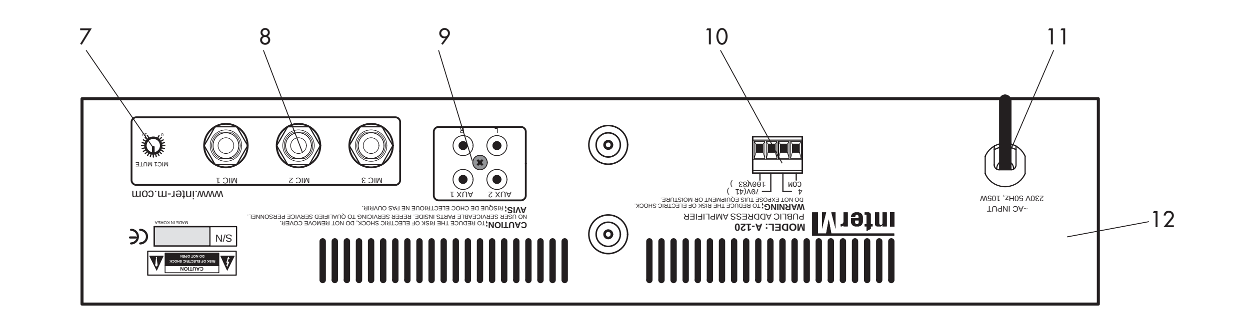
1. RESISTANCE VALUES ARE INDICATED IN OHMS UNLESS OTHERWISE SPECIFIED. (K=1,000 , M=1,000,000)
2. CAPACITANCE VALUES ARE SHOWN IN MICROFARADS UNLESS OTHERWISE NOTED (P=MICRO-MICROFARADS)
3. ALL VOLTAGES ARE REFERED TO GROUND UNDER THE FOLLOWING CONDITIONS.
   DC : NO SIGNAL EXCEPT WHERE INDICATED.
   AC : RMS
4. -PRECAUTION-
   A) ALL COMPONENTS ⚠ MARKED MUST BE REPLACED ONLY WITH ORIGINAL TYPE SPECIFIED BY THE MANUFACTURER, INTER M CORPORATION AND INSTALLED AS THE ORIGINAL SPACE AND POSITIONED AWAY FROM ADJACENT COMPONENTS WHERE APPLICABLE.
   B) ALL SOLDERING MUST BE DONE IN A PROFESSIONAL MANNER USING SOLDER WHITE RESINE CORE ONLY.
   C) ALL COVERS, SHIELD AND INSULATING SPACERS MUST BE REPLACED BEFORE RETURING APPLIANCE TO CUSTOMER.
   D) A DAMAGE POWER SUPPLY CORD MUST BE REPLACED BEFORE RETURNING APPLIANCE CUSTOMER.
   E) DIELECTRIC TEST CONSISTING OF 120V AC 60HZ IS TO BE APPLIED BETWEEN BOTH BALDES OF THE POWER SUPPLY CORD ATTACHMENT PLUG THE EXPOSE CONDUCTIVE SURFACE OF THE APPLIANCE FOR A PERIOD OF NOT LESS THAN ONE SECOND BEFORE RETURING APPLIANCE TO CUSTOMER.
   F) THE MARKED RESISTORS ARE MOUNTED THE P.C.B ON SLEEVES.

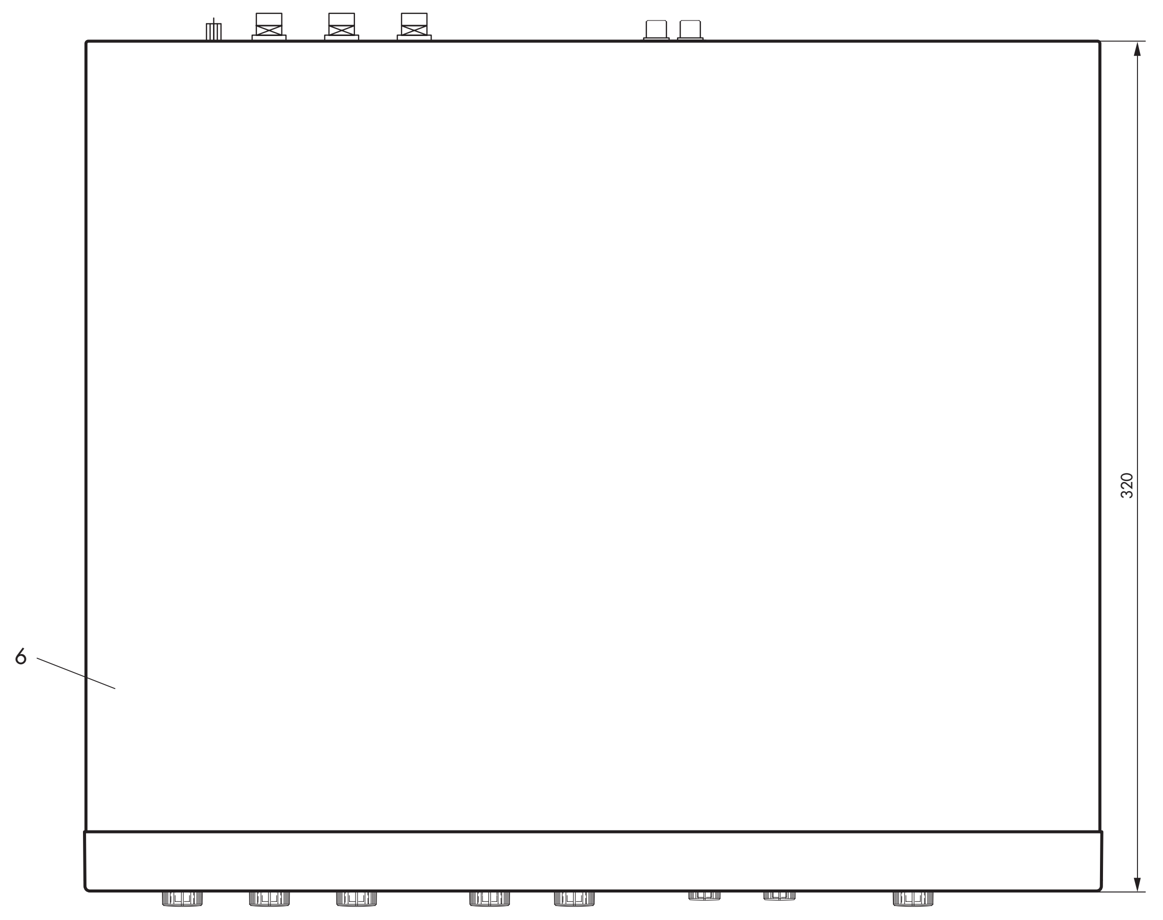
EXPLODED VIEW OF CABINET & CHASSIS/MECHANICAL PARTS LIST

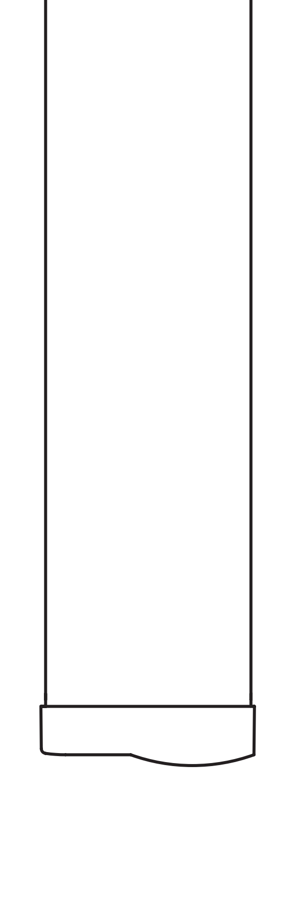


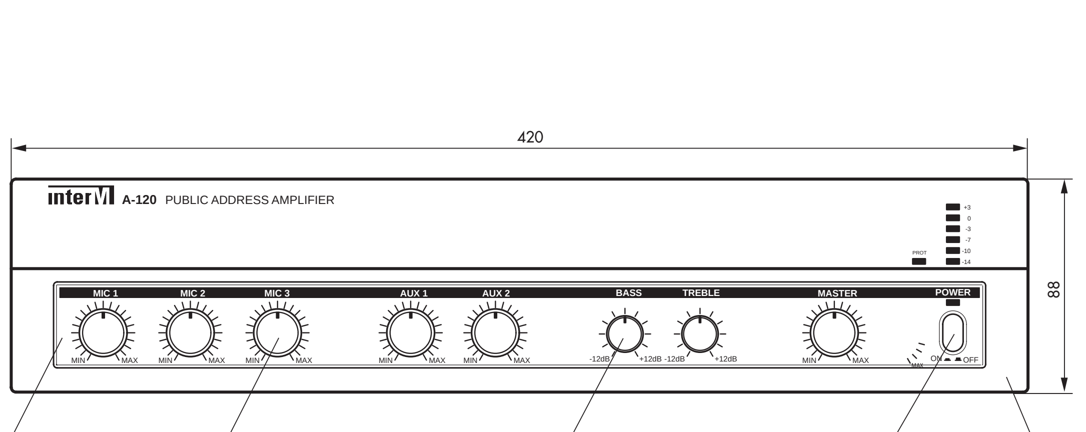
A-60/120 EXPLODED VIEW DWG PARTS, LIST

N0	PARTS NAME	PARTS NO	Q'TY	REMARK
1	FRONT PANEL	048521990611	1	A-60
		048521990612	1	A-120
2	INLAY	048573994111	1	
3	KNOB CONTROL	048543998313	6	
4	KNOB CONTROL	048543997011	2	
5	KNOB PUSH	8543998110	1	
6	VOLUME B'D	4005181110	1	
7	OUTPUT LED B'D	4005181120	1	
8	POWER SW B'D	4005181140	1	
9	CHASSIS MAIN	6121674910	1	
10	FOOT	056335999520	4	
11	HEAT SINK	7502088710	1	
12	HEAT SINK BKT	6505942010	1	
13	MAIN B'D	4005181100	1	
14	BRACKET PCB	6505968010	1	
15	DIODE	2058100103	1	
16	TRANS POWER	2828060010	1	A-60
		2828059910	1	A-120
17	TRANS OUTPUT	2818086100	1	A-60
		2818086200	1	A-120
18	BACK CHASSIS	046102979011	1	A-60
		046102979015	1	A-120
19	JACK NUT	8525998410	3	
20	SP TERMINAL B'D	4005181130	1	
21	TERMINAL BLOCK(F)	4408194004	1	
22	STOPPER CORD	6518999810	1	
23	CORD AC DOM 3 CORE	4308999710	1	
24	TOP COVER	046122089610	1	
S1	SCREW #3BTC 3X6B	8109330063	14	
S2	SCREW #2BTC 3X8B	8109230083	12	
S3	SCREW #3BTC 4X8BK	8109340083	10	
S4	SCREW #2BTC 3X10B	8109230103	4	
S5	SCREW BM 3X6B	8009130063	3	
S6	HEX MSPW 3X16Y	8099130161	8	
S7	ASS'Y SCREW 3PTC 4X8B	8095993410	9	
S8	ASS'Y SCREW PM 4X18B	8095996930	1	









No.	Description	Part No	Q'ty	Remark
1	FRONT PANEL	048521990611	1	A-60
		048521990612	1	A-120
2	SW POWER	048543997210	1	
3	CONTROL KNOB	048543997011	2	
4	CONTROL KNOB	048543998313	6	
5	INLAY	048573994111	1	
6	TOP COVER	046122089610	1	
7	CONTROL KNOB	048543997011	1	
8	PHONE JACK	4438097310	3	
9	RCA JACK 4P	4438095210	1	
10	SPEAKER TERMINAL	4408193904	1	
11	AC CORD	4308991710	1	
12	BACK CHASSIS	046102979011	1	A-60 220V
		046102979012	1	A-60 230V
		046102979013	1	A-60 120V
		046102979014	1	A-60 240V
		046102979015	1	A-120 220V
		046102979016	1	A-120 230V
		046102979017	1	A-120 120V
		046102979018	1	A-120 240V

NOTE